NASA Procedural Requirements

COMPLIANCE IS MANDATORY

NPR 8735.2A
Effective Date: August 02, 2006
Expiration Date: August 02, 2012

Printable Format (PDF)

Request Notification of Change (NASA Only)

Subject: Management of Government Quality Assurance Functions for NASA Contracts (w/change 1, dated 8/9/2010)

Responsible Office: Office of Safety and Mission Assurance

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Appendix B. Program/Project Risk Considerations

This Appendix discusses the identification and analysis of potential risk factors to be considered during development of the PQASP.

1. Identification of Contract Risks.

For each contract, there is a set of characteristics which have been identified as contract requirements and/or deliverable items. These contract-specified items are established during the formulation subprocess of the program/project and have been determined to be critical for the overall contract performance. Other nonspecified items are often related to practices or product features that the contractor has been given flexibility in performing. In identifying contract delivery risks during contract development, source selection, contract award negotiation, and contract performance, contract-specified items should be a primary area of consideration. In order to accomplish these functions effectively, it is imperative that the NASA Safety and Mission Assurance Lead has substantial, direct involvement with the contract development, source selection, contract award, and contractor performance evaluation activities. Typical risks include, but are not limited to, clarity and stability of requirements, introduction of new or development technology or processes, schedule, compatibility, interfaces, or other specified design and/or process conditions.

2. Analyzing the Impact of Contract Risks.

2.1 After establishing the list of potential contract delivery risks, each risk will need to be evaluated to estimate the consequences of the risk, the likelihood of the risk occurring,

and the timeframe in which action must be taken to ensure effective mitigation of the identified risk. NPR 8000.4, Risk Management Procedural Requirements, provides the overall process requirements for performing these analyses.

2.2 The following are considerations in establishing consequence (severity) of the risks:

a. Safety - Do risks involve risk to the public, risk to astronauts and pilots, risk to NASA workforce, risk to high value equipment and/or mission success?

b. Cost - Could risk have a significant impact to the overall project/process operating cost?

c. Schedule - Could risk impact a "long-lead item," involve a deliverable that is not off-the-shelf, have limited contingency or margin options, or otherwise have the potential to significantly impact project/process schedule?

d. Performance - Could risk significantly reduce user group access, availability, or mission life or impact the mission success criteria?

e. Other - Could risk affect national or NASA prestige?

2.3 For the identified risks, evaluation is required to establish the likelihood of occurrence. This determination can involve a combination of quantitative as well as qualitative considerations. The contract risks will change throughout the program/project life cycle, requiring periodic re-evaluation. Considerations in determining the likelihood of occurrence include the following:

a. Goals - Do the contract requirements involve high-precision, sensitive components, or difficult-to-obtain performance features?

b. Margin - Do the contracted requirements have a low factor of safety, margin of error, or tight design tolerances?

c. Control - Do the contracted requirements involve processes prone to human error or issues with process stability, repeatability, or output control?

d. Redundancy - Do the contracted requirements involve safety or mission success functions that are not failure tolerant?

e. Maturity - Do the contracted requirements involve new technology, a new application, or nonstandard process techniques, tools, or equipment?

f. Heritage - Do the contracted requirements have a prior history of performance or capability issues for the same or similar design or processes?

g. Inspection - Do the contracted requirements fail to specify receiving, in-process, and/or final inspection, test, or monitoring at the contract location that would be an effective screen?

h. Problems/Issues - During the performance of the contract, have technical and/or quality issues occurred which require direct Government involvement to resolve the issue?

i. Contractor Quality System - Is there a lack of confidence in the quality system of the contractor for any of the following reasons:

(1) NASA does not have knowledge of a quality assurance audit performed by a credible

source.

(2) The contractor has not demonstrated acceptable past quality performance.

(3) The contractor is new to working with NASA and NASA-type requirements.

(4) The contractor has experienced instability in their quality system or continuous nonconformance issues with any aspect of their quality system.

(5) The contractor has insufficient performance measures or incentives for contract monitoring.

(6) The quality expectations for contract deliverables are not sufficiently detailed.

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